

PROGRESS REPORT

GRANT NUMBER: 7310035

High Capacity Airborne Wind Turbine

Altaeros Energies

08/01/2013 – 10/31/2013

Deliverables Submitted

No official deliverables were scheduled to be submitted this period.

Budget

The amount invoiced to AEA is for \$63,155.19 out of a total of \$105,817.58. Given \$11,772 remaining from last quarters advanced payment, this results in a current AEA payment of \$51,383.19. The main expenses were for:

- Altaeros salary for Task 1-2
- Travel expense for Altaeros prototype testing for Task 2
- Equipment and materials for Task 2
- Outside service for Task 2
- Utilities and Rent for Task 2

Amount Invoiced to AEA this Period: \$63,155.19

Previous Advance Payment remaining from last period: \$11,772

Cash Amount to be Paid to Altaeros by AEA this Period: \$51,383.19

Match Recorded: \$42,662.39

Schedule Status

Our project is roughly on schedule. Our FAA permit filing has been delayed at least one month because of the federal government shutdown and a personnel change of the FAA expert at our partner, TDX Power. We are hopeful that this will not impact our overall schedule, and we plan on submitting our FAA approval request over the next month.

Percent Complete

Tasks/Milestones	Start Date	End Date	Percent Complete
Task 1: Final site selection, permitting, and community forum	Mar-13	May-14	50%
Task 2: 30 kw turbine assembly and testing in Maine	Jul-13	May-14	30%
Task 3: Complete instrumentation plan and shakedown test plan	Jul-13	Feb-14	10%

Work Progress

Task 1:

- Site Selection
 - Our team conducted an evaluation of the top 5 potential sites.
 - Using a six variable matrix, our team determined that Eva Creek would be our preferred first choice site, primarily because of FAA approval and the benefits of Golden Valley as a partner.
 - We obtained follow up data on the site map and other site information, including the lat/long coordinates, and other prior authorization information.
- Permitting
 - Our team has determined the specific microsite to submit to the FAA
 - We have had the FAA permit strategy reviewed and approved by a legal expert.

- We have reviewed a database of other FAA permit applications and approvals in Alaska to help guide our strategy
- We have a draft FAA permit application under review by TDX Power

Task 2:

- 30 kw turbine assembly and testing in Maine
 - Team completed assembly of a half-size inflatable shell to evaluate refined aero and control design, stability and performance to guide the 30kW prototype development.
 - Team completed retrofit of docking trailer for prototype test
 - Team updated controls system and completed autonomous indoor shakedown
 - Team built small model of lightweight wind turbine using modified design to guide 30kW blade design, and initiated testing of the turbine to evaluate performance

Task 3:

- Instrumentation plan and shakedown test plan
 - No activity

Future Work**Task 1:**

- Site Selection
 - Preliminarily completed (Eva Creek), unless future permitting problem arises.
- Permitting
 - Submit an FAA application to seek airspace approval following aeronautical study of Eva Creek Site
 - FAA approval is a material risk given that this is a first-of-its-kind project. We are mitigating this risk by working with FAA experts to draft our proposal. In addition, we are prepared in our timeline to resubmit with additional information or to resubmit at a second site if needed.
 - Begin formulating permitting strategy for Fish & Wildlife approval of Eva Creek Site
- Community Assessment
 - Initiate follow up conversations to test hypothesis of no community concerns at Eva Creek site, and evaluate need for a Community Forum.

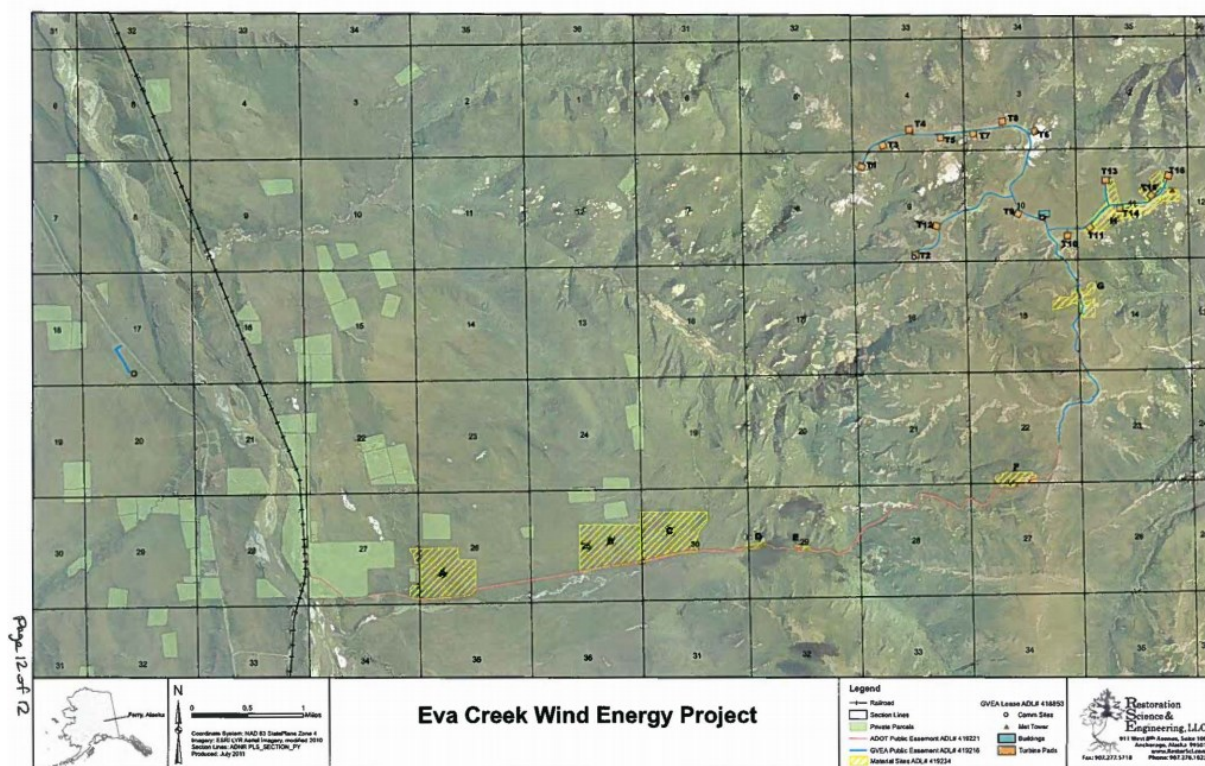
Task 2:

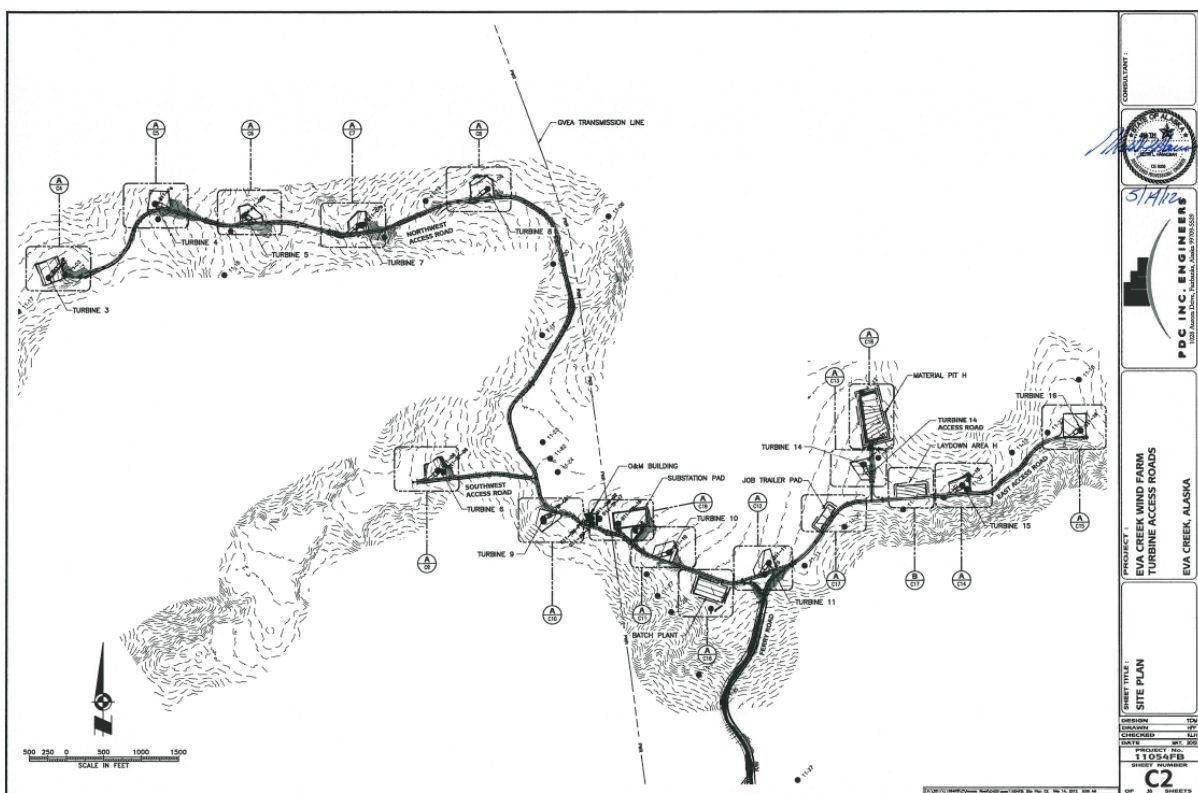
- 30 kw turbine assembly and testing in Maine
 - Complete half-scale outdoor airborne testing of inflatable shell.
 - Begin 30kW prototype design
 - Complete test of small wind turbine using modified design to guide 30kW blade design

Task 3:

- Instrumentation plan and shakedown test plan
 - Assess performance of instrumentation in 25ft shell test
 - Develop initial test plan for 30kW turbine if appropriate.

Final Eva Creek Site Selection - SW of Turbine 9 (Task 1)





Buoyant Airborne Turbine Prototype Development (Maine, Task 2)





Ducted small rotor test setup (Task 2)



Computer Image of Potential Product Deployment for Community communication (Task 1)

